becomes an industry-accepted standard, an industry-accepted manner to determine whether or not you're causing a harm or not.

If we leave it very vague and say, "Your signal power should be such that it doesn't harm a third party," and we leave the rule like that, then we're -- no one's really been helped by that. There's just going to be battles between everyone trying to determine whether or not they've complied with the rule.

So I believe we need some very specific numbers. We also need specific methods for testing the equipment to determine whether the number is met, because you want to be able to take the same piece of equipment. If you test it twice, you want to get the same result, not that it passed one time and failed the next time because you didn't understand the test setup. So both of those are important.

I think the industry can provide those. Industry standards organizations can provide that type of detail in their industry standards. I think they're willing to do that.

In the FCC in Part 68, we gave two examples. The FCC currently does reference industry standards in Part 68. In our written comments, we gave two examples of what we thought were good ways to reference standards and two ways that we thought were less than ideal.

I'll give just one example of a good one. And that is in 68.3, it specifies that a zero level decoder shall comply with the MU255 PCM encoding law as specified in ITU TSS recommendation G.711 for voice band encoding and decoding.

Well now, that's got a very -- a lot of technical terms in there, but to the industry, that's very, very specific. They know exactly how to comply with that particular rule. And the standard has been referenced. So rather than Part 68 having 35 pages of details concerning this zero level decoder, they've referenced a standard.

And I think Anh mentioned earlier today that probably most of -- there's no reason why most of subpart B can't end up in a standard somewhere and be referenced in this manner. And certainly subpart F dealing with the connectors, there's a question there whether connectors -- really to a lot of people, that seems like more of a compatibility issue than a harms issue. But certainly a standard could be included in the information.

MR. SCHROEDER: Would there be a way for us to step back from even what kinds of references we have here now, so that instead of having to say we adopt the industry standard for a zero level decoder, we could somehow give more general guidance and let the industry decide that that's a standard they need to adopt?

MR. BISHOP: I don't really think that -- I think I'll let the manufacturers speak for themselves, but I'm pretty sure they'd have a problem with that.

MR. SCHROEDER: Chuck, did you have --

MR. BERESTECKY: Well, I think I understand where you're heading. I believe that a Part 68 that's maintained by the Commission could be something that's very simple in concept. It says, "Thou shalt not cause harm. We've got to meet these types of harms." And then, at the point (phonetic) to an SDO standard that contains the technical requirements.

Now, we're going to talk this afternoon maybe about how we can get to that point. But I think that that would be a very acceptable way to go. It removes you from maintaining it. It puts the industry into maintaining the standard and keeping it up to date. But it gives you the oversight and the control and the law -- force of law on that by pointing to it.

MR. SCHROEDER: Right.

MR. BERESTECKY: Now, I don't know exactly how I would frame that now, but I could see it one page. C.F.R. Part 68 is one page.

MR. SCHROEDER: Yeah. That's essentially what I was asking. Would that one page be able to give sufficient guidance so that the industry's engineers could come up with

useful standards -- specific standards?

MR. BERESTECKY: They'd have to refer back to the standard that's written by the industry for that information. The answer's yes. I think it can.

MR. SCHROEDER: Mr. Hurst?

MR. HURST: Just to respond to the last couple of questions. I think first off, we need enough guidance in Part 68 so that that standard's development organization has enough guidance to make the determination. Just like as mentioned, if a design engineer has enough guidance, he can design the equipment. If an SDO has enough guidance, it can design the standard. Within that organization, there's going to be very free and open discussion about what it should be. And there's sufficient guidance, maybe one page isn't one. Maybe we need two pages.

But there needs to be some guidance, so that it's clearly spelled out what the harms are, so that they understand if we make a general statement, then we're going to miss the point and not get something in the end that's what we want.

And I agree with Chuck that we must point to the specific standard. We cannot just make a general statement, "Don't cause harm to the network," and leave it to your own devices to figure out. We need to point to a very specific standard that says, "Meet this standard," and then you will

be able to show you, you do not cause harm to the network.

MR. SCHROEDER: Mr. Pinkham?

MR. SCHROEDER: Thank you. Clint Pinkham again, Thomson.

I agree pretty much with Chuck that a rough standard for Part 68 is generally quite adequate. However, I do believe that there is a need for some specific numbers in that standard.

It's very convenient and probably works very well to point to an industry body to develop procedures for how you make the measurements. I think Part 15, I've alluded to before, does this quite nicely. It says, "You can only transmit this much energy. And by the way, here's how you measure it. Go see this particular document."

There's one problem, however, in developing the actual final numbers in an industry standard. And that is that industry will do a good job of representing itself. And there are different facets of industry that will take care of whether the carriers or the manufacturers dominate.

But in that forum, the consumer tends to get lost except as perhaps a secondary concern for both the manufacturers and the carriers. And the consumers might be different people in those cases. So I believe that there has to be a -- what's the word I'm looking for? A disinterested party that makes the final decision on the

number. Thank you.

MR. BIPES: John Bipes, Mobile Engineering. I've served on the TIAs, TR41.9 engineering committee for about 15 years, and I never cease to be amazed at how thoroughly and completely that committee does its work and forms an industrywide consensus, and how good, finally, a document gets produced by that committee, whether it's TSB-31 or whether it's the harmonization of Part 68 in Canada, CSO-3.

So I want to be sure that it is well understood that we do have something working very, very well here, not only in the TIA with TR41 committees, but also T(1) E(1) committees. I'm just amazed at how well these committees represent the industry and develop such a broad spectrum consensus.

I want to be sure that whatever is done at this point does not follow that euphemism that somebody said it's very easy to break eggs without making omelettes. If we're going to break eggs, let's be very careful of what comes of that.

So far as the FCC having a single-page document or perhaps a two-page document, I think that's very possible. However, I think there's a caution there. And that is that FCC is going to have to maintain some ownership of the specifics, the meat and potatoes that are in the document referenced.

Having mentioned TIA and T(1) E(1), I'm very heartened to see that in the last year or two, that FCC has been attending regularly the industry meetings of these committees and working with the process. I think FCC's presence has been incorporating what Clint is referring to as the -- perhaps, the voice of those who do not have voices sitting around the table. FCC has a way of bringing in various complaints that may have come to the Commission from consumers around the country and making sure that that voice is heard, as well.

If push comes to shove on a particular law now that we may have down the road where a single-page FCC document refers to an industry standard, I think the FCC has to have enough ownership of that so that it does get said, "Well" -- by the FCC, "Well, we don't know exactly why ANSI put in that requirement in paragraph 4.5.4. And so therefore, we don't really know what to do about it." That's a concern I have with FCC condensing it down to simply one page, just run over this standard, and we'll adopt that.

MR. SCHROEDER: Thank you very much. That's a very good point. Mr. Salinas?

MR. SALINAS: Yes. I can give you a good example and several bad examples of what you're talking about. A very good example is the minimal information that you put in

the document associated with stations off of a PBX and trunks off of a PBX. That is complimented by RS464A, which handled analogue PBXs, which is now RS464B, which handles analogue and digital PBXs and covers all the interchanges, the timings, the power, too much voltage -- it covers everything you want to talk about in over 300 pages of paperwork.

But you in your document, have it down to a few pages. That's a very good example.

A bad example of letting industry come back on the side is where some people in industry may want to do a market share scenario as for the debate between CAP and DML on ADSL or DSL-type services. The debate between 2B1Q and SEPAM. One group of manufacturer wants SEPAM. One group of manufacturers wants to be 1Q. And depending on who their customer is, what market share they buy, that's another issue. Those particular scenarios is where you don't want to say, "Industry, you do it all yourself." Somebody has to keep that.

My worst example is in-band command on a T1 span line to operate remote-controlled equipment. That was a standard that was set several years ago. It became a digital-factor (phonetic) standard for the industry. But then, all of a sudden, the one manufacturer who was part of that committee who came up with his regional plan has now

patented it. So everybody has to pay them a royalty for using it, and it's a standard.

Now, are going to let me up to where I have to pay somebody a royalty for using a standard? It's already happened. The precedent has already been set in industry. I now -- manufacturers who I buy equipment from to talk to remote controlled DS1 equipment now have to pay patent fees for using the technology that was developed as a standard. And you don't want to fall in that scenario.

MR. SCHROEDER: Yes, I would agree. Other comments? Yes?

MR. GODFREY: I'm John Godfrey with the Information Technology Industry Council. First, I will respond to Mr. Salinas.

In the ANSI-accredited standards developing processes, one of the requirements early in the development of a new specification is a call for patent information in which the members have to disclose patents that they hold or may soon hold on technologies that the group is discussing. So that's one way that ideally at least, those things get aired before there's a final decision on adopting a particular standard.

And companies that put forward a technology in which they hold a patent to be part of a standard, in the ANSI process they are asked to affirm upfront in writing

that they will license on reasonable and nondiscriminatory terms to all participants. If they don't agree to that, then that patent can't be included in the final ANSI standard.

But actually, the other point I originally raised my hand to make was, I think the one or two-page model is a very viable model for Part 68, because I think something that's implicit in many of the comments is the assumption that FCC staff will continue to come to the industry forum and participate heavily in the technical questions that come up. That's part of how ownership happens.

Ownership doesn't have to be based on the FCC having a final up or down vote on the standards. It can happen because of strong technical participation. And we've seen that work in the Part 15 area for many years where OET staff are very active in ANSI committees, C-63 and in the international committees. And although they don't have a final veto, they, through the strength of their participation, are very influential.

Now, what would you want to put in that one page? There probably does need to be something more than just, "Thou shalt not harm the network" for a very practical reason. The kinds of things you need to list in the one page are matters of public policy that are not matters of engineering analysis. Matters of public policy where you

have decided as only the public policy entity can to put certain things on the table or take them off the table. And I think maybe the best or clearest example is that even the current rules have taken off the table user performance, which is treated as a marketplace competitive issue.

So whether the four items that have traditionally been in the Part 68 rules are exactly the right short list or not, I couldn't say. But I think they're probably a pretty good set of markers.

I think Chuck is nodding his head, so I'll defer to Chuck's expertise on that. Thank you.

MR. SCHROEDER: Any other questions? That's it for me.

MS. MAGNOTTI: Any more Commission questions?

MR. BERRESFORD: I'd like to ask one more if I could.

MS. MAGNOTTI: Go ahead.

MR. BERRESFORD: I have sort of a followup question for Mr. Salinas. You gave me -- you gave us a very interesting example earlier of a true story of harm. And that was where you said there were two campuses or there were parts of a campus that were separate.

MR. SALINAS: Yes. There's a system called a campus HDSL, which is basically a teapot that the people can use on the campus environment. The manufacturer sold that

as a campus HDSL to connect multiplex equipment on each end, was on a campus environment. The customer took that to be that campus, no matter where my campus was one location or whether my campus was multiple locations. Usually, in a campus environment, your cable is limited to 6,000 feet or less, so they designed their equipment to serve a 6,000 feet scenario, but at the same time, have an auto gain feature to where if there was something that happened to the line, it would automatically add gain.

Unfortunately, this particular customer decided that he going to connect his equipment, Campus A to Campus B with several miles of copper in between, that was crossing the network in and out of my switching office. The distances made it such that that equipment automatically raised the gain to talk to each other across several miles of cable in and out of my office, affecting a 900-pair cable in one what direction and a 900-pair cable in the other direction, effectively putting 1,800 people out of business.

MR. BERRESFORD: So when the problem came up, if I can put it rather bluntly, did you go to the customer and say, "You can't connect that CPE?" Or did you say, "Let's try to work this out?" Or did you say, "I will fix your CPE to keep you a happy customer?"

MR. SALINAS: No. When the problem came up, it was several days of finding out who was causing the problem.

So we had several customers out for several days. Once the problem was found, then we questioned them about the application of their equipment and suggested that they go back to their manufacturer and reaffirm that this was a proper application. We jointly called their manufacturer, and their manufacturer informed us that that was the improper application, and they could have -- they could sell them something else that would do the same -- in the same service and not cause harm to the network.

MR. BERRESFORD: And did the customer then buy something else from the manufacturer?

MR. SALINAS: Yes, sir. And he used that existing prod (phonetic), but strictly on his own campus rather than crossing the network to adjacent campuses.

MR. BERRESFORD: Okay. The reason I ask this question -- these particular questions from your very helpful example is that I was -- talking to somebody from the cellular industry a few months ago who frankly laughed and said, "We have nothing like Part 68. And we've got 60 million customers happily talking away." And I said, "Well, what happens when, as it must, some customer's phone causes harm to your system? What happens?" And he said, "Well, we call up the customer and we tell them that if they bring their phone in, we'll fix it for free."

And then I looked at him sort of puzzled and said,

"Well, why would you do that?" And then he looked at me like I was the dumb one, and he said, "Because we spent $500 in marketing expenses to get that customer on our system. There's a whole lot of other systems that customer can go to. And we want that customer to be sending us a check every month."

I guess the point that I drew from that being is that in the cellular business where you have more competition, there are marketplace mechanisms that solve these problems without Part 68. And I wonder as more competition comes to the local exchange business, are these problems going to be solved in that way with less involvement by the government? Or is it not a proper comparison?

MR. SALINAS: Improper comparison for one, because the cellular (phonetic) connects to my network, it is -- has Part 68 where the cellular world connects to my network in that scenario. In the second scenario, the cellular world, because of the defined frequency and the defined identity number based on each phone, they have equipment that can automatically take that system out, target it as a -- this is the phone that's causing me trouble, and I am immediately there.

In the world of HDSL or noise being introduced, be it DSL-type technology, I don't know who's doing it. I've

got to spend a whole lot of time finding out who it is. And then, once I find out who it is, we have to find out about his equipment and not as a manufacturer.

In the cellular business, they give the phones away just to get you to get the airtime because you're going to charge them $300 a month to talk a lot. So that's a throwaway issue. And in most cases, they're the ones that sold the customer the phone. I do not do that today.

MR. BERRESFORD: This is just --

MR. VARMA: John, may I just pause on that for a moment, please?

Jim, you say that even though the cellular CPE is not covered by Part 68, you said that it -- because the online network does have Part 68, therefore, there is that protection involved.

MR. SALINAS: Yes.

MR. VARMA: My question is that, isn't it true that all wireless CPE must come to your network -- to the wireless network first whether the call is incoming or outgoing in nature? And therefore, whatever harm it could possibly cause would probably happen first to the wireless network before the signals come to the wire line network.

MR. SALINAS: In the United States as an example, yes, because of the basic interior structure. But if you get into a new development country where there is no

interior structure, he may never touch my network. For example, in Vietnam, it is all wireless and satellite-based. Chile's wireless and satellite-based. It doesn't touch my network. Plus, it would be cost prohibitive to lay that cable between those remote towers back to their location.

MR. VARMA: Okay. So that where the U.S. is concerned, it appears to us that without a Part 68, the wireless CPE is functioning there without causing any harm on the wireless network.

MR. SALINAS: Yes, sir.

MR. VARMA: Or for that matter, even to the wire line network.

MR. SALINAS: Yes, sir. It regulates down the input into my network via a standard form, be it digital or analogue. But in the example given here, it did cause harm to the wireless network, otherwise they would have never been talking to their customer.

MR. VARMA: Okay. Go ahead.

MR. HURST: Just a followup. There is -- for the wireless, there is not Part 68 that applies, but there is Part 22 and Part 24 of the FCC rules that gives the requirements for that cellular and PCS equipment that they must meet. So there are FCC regulations that deal with that product.

Also of note, the cellular telephone industry

association has a certification program where those products are tested and certified by that association. And so they have mechanisms in place and there are requirements that must be met.

MR. VARMA: Bill, does CTIA do the testing?

MR. HURST: They have given a contract to an independent laboratory to do that work, and manufacturers are required to go to that single source.

MR. BERRESFORD: And Bill, on the rules that you just mentioned in Part 22, isn't it the case, and I could be wrong but I believe it's the case that those rules, though they are there in Part 22, are nowhere near the detail of Part 68 and are principally concerned with, one, making sure that the phone doesn't cause damage to the person holding it by putting out too much power. And number two, that it stays within the frequency band that it's on. And that's all that they deal with.

MR. HURST: When we look at wireless and we look at the EMC portions, yes. You're addressing harm as to what it can cause. And so, it's a different subset. And so Part 68 is more complicated. It covers a much broader range of products and types of interfaces. And the rules have been developed for each type of interface. Whereas, as a cellular sort of an arrangement, the rules within the Part 22 are directed towards what they can cause and harm.

They do have requirements that deal with the RF hazards, which is unique to that particular type of product. And so, the rules are directed very much to where the problem comes. If we look at a very specific product, the digital piece of equipment under Part 68, it is a very limited subset of requirements that apply to that product. The complexity of Part 68 is the fact that it covers such a broad range of equipment.

MR. SHINN: Compared -- to emphasize or rather expand what Bill has stated, Part 68 covers that portion of the cell phone industry where the transmitter or the transceiver, the base station portion where we will directly connect to the network. And obviously at the other side, you're wireless. So that interface, Part 68 and Part 22, Part 24.

Again, as Bill pointed out, in Part 22 it's an extensive set of documents that -- testing is rather rigorous. The harms that are basically in two areas. The area it talks about was the harm -- the RF harm to the user. And the other would be equivalent to cross-talk, if you will, where your bandwidth, or you're out of spec, in the spectrum type of things.

So those are the harms that they have there that obviously you want to fix because you've got a problem. Power limits are either too low or too high. But those are

the issues that where a product has gone bad, rather than as it is, not out of spec, where the spec isn't there.

So those are the areas. The standards are there. The specs are there. And some of it, in fact, also includes the ANSI standards for rather lengthy, detailed specifications, including everything from frequency -- all the different frequencies of bands and where they're going to -- all of the different channels are going to be.

So it's all there. It's just that I think the person talking sort of slightly misspoke in the way he looked at -- or didn't realize all of the background that was there.

MS. MAGNOTTI: Mr. Pinkham?

MR. PINKHAM: One thing. If you take a look at the wireless scenario, the rules themselves aren't terribly complicated. I think the sections quoted in the C.F.R. for wireless are considerably smaller than Part 68. But if you actually look at the technical definition of what's going on in those communication media, you wind up with a bookshelf. I mean, you know, this much paper describing who says what to whom and in how many bits, and what order and how do you share time, frequency, whatever.

In that respect, it might make a very, very good model for Part 68 in that the basic regulations, which do have the force of law and government are relatively

simplified, but they point to some very, very complicated technical documents. And I don't want to offend anybody again. But let's face it. A cellular phone is more complicated than a telephone, and yet, this relatively simple C.F.R. Part points to this very, very big technical document that defines how it works.

MR BERRESFORD: And the technical part is written by whom?

MR. SHINN: In this particular case --

MR. BERRESFORD: government or private bodies.

MR. SHINN: Actually, TIAs.

MR. BERRESFORD: Okay. Thank you.

MR. SHINN: But not TR41. It's different.

MS. MAGNOTTI: Okay. Mr. Chamney?

MR. CHAMNEY: I was not sure about the reason or the context for a question by Mr. Varma earlier. And I would like to caution that we not come to some conclusion that they would be as easy for telephone companies to protect our network from CPE, which is bought by the millions collectively by consumers from third parties, and connected to the network, you know, at various places and various times. Whereas, it's much easier to control what happens with someone we have a contract with, specifically, a wireless carrier or whoever, and we can negotiate the interface characteristics with.

MR. VARMA: Okay. I understand your point, and I appreciate it. Perhaps in the forum in the afternoon, we will be able to explore other opportunities of accomplishing what we need to accomplish and what different processes we might be able to use so that the role of the federal government is reduced, as I pointed out in my opening remarks this morning, without compromising the integrity of the network.

MS. MAGNOTTI: Do any of you have comments about other filers' comments? Any replies? Or do you have any other questions that you'd like to ask each other? No?

Does the audience have anything? Yes?

MR. BIPES: I've been taking -- John Bipes, Mobile Engineering. I've been taking some notes for myself, and I wanted to make a couple of general comments yet during the morning session here.

I think the consensus is that we need a speedy evolution of new standards. We need the opportunity to make changes to, additions to, deletions of, existing standards. Exactly who would own those standards and how they would be referenced by the FCC, I think is something that we can amiably work out.

However, I think that whatever happens, those must have the force of law. And the reason they have to have the force of law is -- are for the purposes of universality,

credibility, forced compliance and prevention of regionalized fragmentation into many different standards, which I think would be very regressive in hopefully a progressive age.

Another issue is that as the speed of technology increases and product life cycles get shorter, another argument for keeping the force of law in the standards is that we also have regrettably get-rich-quick schemes, where if a product life cycle is short, then there appear people who want to do the equivalent of day trading with CPE equipment. And if they can appear before anything occurs that would cause any loss of skin or blood, they can be gone, and the telephone number is disconnected. Then I think that's a regrettable negative that we have to keep in mind. Hopefully those operators are few, but nonetheless, they are there.

In my dealing over the years with applicants for Part 68 registration, I have found there to be not much interest in what we should do. We don't have a bunch of time for that. I usually hear that it's what we must do. What we must do, they do pay attention to. And I think that that has to be kept in mind.

If there's room for improvement, I think, as I said in my previous comment, the industry has worked very well together in T(1) E(1) and in TIA and forming industry

consensuses, but I think that we could use a little bit speedier action by the FCC. And yet, I say that reluctantly because I don't know what goes on behind the scenes with the FCC. I know that there's an enormous, or a lot of -- there's an enormous amount of work that I do not see. And so I don't know how much to ask the FCC to speed up and streamline its processes.

But it does seem that in Canada, with industry Canada, we have a fairly streamlined procedure in the wireline service registration or certification process that we could take somewhat of an example from. For example, I wonder why it is that the money has to be handled through the Mellon Bank for registrations.

I think in Canada it's true that credit cards can be used, that electronic transfer of funds is possible. Here in the USA, our submissions are by and large still dependent upon cutting down trees and sending in an awful lot of paper. That, in this day and age, could be done electronically. And I think that is done in Canada in a much more streamlined way than is done here in the USA.

So I think there is a lot of room for improvement on the system, reducing the length of time and the frustration to manufacturers without changing basically what it is we do.

So that's my comment.

MS. MAGNOTTI: Okay, thank you. Any more comments? Okay. We'll break for lunch. And as you go, I'll give you directions to the cafeterias that are in the building.

(Whereupon, at 12:00 p.m,, the hearing recessed to reconvene that same day, Monday, July 12, 1999, at 2:00 p.m.)

1